



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

**MAR 8 2000**

400 Seventh Street, S.W.  
Washington, D.C. 20590

DOT-E 8009  
(TENTH REVISION)

EXPIRATION DATE: January 31, 2002

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: FIBA Technologies, Inc.  
Westboro,

(See Appendix A to this document for a list of additional grantees)

2. PURPOSE AND LIMITATION:

- a. This exemption authorizes the transportation in commerce of compressed natural gas (CNG) in a DOT Specification 3AAX cylinder made of 4130X steel. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
- b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.302(a)(3) in that the specific impurity levels are specified.

5. BASIS: This exemption is based on the application of FIBA Technologies dated January 11, 2000, submitted in accordance with § 107.109.

MAR 8 2000

Continuation of DOT-E 8009(10th Rev.)

Page 2

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Natural gas, compressed	2.1	UN1971	n/a

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a DOT Specification 3AAX cylinder constructed in conformance with DOT 3AAX specification (§§ 178.35 and 178.37) except as follows:

(1) The marked service pressure must be at least 1800 psig but not over 4000 psig.

(2) Cylinders must be constructed of 4130X steel as specified in § 178.37(b) except that for cylinders with a marked service pressure greater than 2800 psig, the percent of sulphur and phosphorus contents may not exceed 0.015 and 0.024 respectively.

(3) The ultimate tensile strength determined in accordance with § 178.37(k) may not exceed 126,000 psi.

(4) The yield strength to ultimate strength ratio may not exceed 86%.

(5) Requirements for Tensile and Hardness Tests.

(i) When the cylinders are heat treated in a batch furnace, two tensile specimens may be tested from one of the cylinders or a test ring from each batch. The lot size represented by these tests may not exceed 200 cylinders.

(ii) When the cylinders are heat treated in a continuous furnace, two tensile specimens may be tested from one of the cylinders or a test ring from each four hours or less of production. The test lot based on this production period may not exceed 200 cylinders.

MAR 8 2000

Continuation of DOT-E 8009(10th Rev.)

Page 3

(iii) Each specimen for the tensile test may be taken from the sidewall of a cylinder or from a ring which has been heat treated with the finished cylinder of which the specimen must be representative. The axis of the specimen must be parallel to the axis of the cylinder. Each cylinder or ring specimen for test must be of the same diameter, thickness, and metal as the finished cylinder they represent. A test ring must be at least 24 inches long with ends covered during the heat treatment process so as to simulate the heat treatment process of the finished cylinder it represents.

(iv) A test cylinder or test ring need represent only one of the heats in a furnace batch provided the other heats in the batch have previously been tested and have passed the tests and that such tests do not represent more than 200 cylinders from any one heat.

(v) After the final heat treatment, each cylinder must be hardness tested on the cylindrical surface. The hardness shall not exceed HB 269. When the result of a hardness test exceeds the maximum permitted, two or more retests may be made; however, the hardness number obtained in each retest may not exceed the maximum permitted.

(vi) The test results must conform to the requirements specified in § 178.37(1), paragraph 5(v) above, and the additional requirements of this exemption.

(vii) When the test results do not conform to the requirements specified, the cylinders represented by the tests may be reheat treated and the tests repeated.

(5) Ultrasonic Examination. After the hydrostatic test, the cylindrical section of each cylinder must be examined in accordance with of ASTM Standard A-388-95. CP Industries may increase the ultrasonic scanning speed in accordance with the procedure described herein and Appendix A of CP Industries, on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). The

MAR 8 2000

ultrasonic examination scanning speed must be less than or equal to the speed at which an acceptable calibration was made. The equipment used must be calibrated by angle beam technique to detect a notch equal to five percent of the design minimum wall thickness. Any discontinuity indication greater than that produced by the five percent notch shall be cause for rejection of the cylinder unless the discontinuity is repaired in accordance with § 178.37.

(6) Drain tube: Each discharge end of the cylinder must be equipped with an internal drain tube.

b. TESTING - Each cylinder must be requalified as specified for a DOT-3AAX cylinder in accordance with § 173.34(e).

c. OPERATIONAL CONTROLS -

(1) Each cylinder must be filled only with non-corrosive compressed natural gas (scrubbed to remove acid gases) and may not contain any liquefied gas. The gas contained in the cylinder may not have more than:

(i) 0.5 lbs. of water per million cubic feet at standard temperature and pressure (STP) (60°F, 30 inches Hg).

(ii) 0.1 grain of hydrogen sulfide per 100 cubic feet at STP as determined by ASTM D 2385-76 Test for Hydrogen Sulfide and Mercaptan Sulfur in Natural Gas (Cadmium-Sulfate Iodometric Titration Method).

(iii) Total Soluble Sulfides other than H<sub>2</sub>S or soluble sulfides must be less than 0.1 grain per 100 cubic feet at STP.

(iv) One percent by volume of oxygen.

(v) Three percent by volume of carbon dioxide.

(vi) Four percent total (including but not limited to items (4) & (5) of this paragraph) by volume of all non-hydrocarbon gases (excluding nitrogen).

MAR 8 2000

Continuation of DOT-E 8009(10th Rev.)

Page 5

(2) The shipper is responsible for establishing procedures to determine the composition and impurity level of the gas at each facility used for filling the cylinders, and to verify a compliance to the requirements of this exemption. Records of the gas composition and impurity levels must be maintained for three years.

(3) Cylinders that become contaminated with H<sub>2</sub>S or soluble sulfides must be condemned.

(4) During any unloading operation each cylinder must be inclined to an angle that lowers the centerline of the cylinder at the discharge end to a point lower than any portion of the opposite end of the cylinder.

(5) The cylinder may be manifolded in accordance with § 173.301(d) (2) and securely mounted on a motor vehicle.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this exemption who receives a package covered by this exemption may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this exemption and the HMR.

b. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

c. MARKING -

(1) Each cylinder must be marked CNG immediately following and on the same line of the required DOT specification marking, example: DOT-3AAX2400 CNG to signify the cylinder is suitable for compressed natural gas service when manufactured, inspected, tested and used as prescribed in this exemption. For a cylinder made prior to the effective date of this exemption the CNG may be marked only on a qualified cylinder. Such marking shall be made no later than the time of the next required retest.

MAR 8 2000

Continuation of DOT-E 8009(10th Rev.)

Page 6

(2) Each motor vehicle must be plainly marked on the right side near the front, in letters at least 2 inches high on a contrasting background, "DOT-E 8009"

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
  - o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
  - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

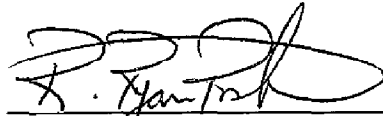
12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

MAR 8 2000

Continuation of DOT-E 8009(10th Rev.)

Page 7

Issued in Washington, D.C.:



*For* Robert A. McGuire  
Acting Associate Administrator for  
Hazardous Materials Safety

MAR 8 2000

(DATE)

Address all inquiries to: Associate Administrator for  
Hazardous Materials Safety, Research and Special Programs  
Administration, Department of Transportation, Washington, D.C.  
20590.

Attention: DHM-31.

The original of this exemption is on file at the above office.  
Photo reproductions and legible reductions of this exemption  
are permitted. Any alteration of this exemption is  
prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S.  
Department of Transportation, 400 7th Street, S.W.,  
Washington, DC 20590-0001, Attention: Records Center, 202-366-  
5046.

Dist: FHWA  
PO: KFW

## APPENDIX A

The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
CP Industries, Inc. McKeesport, PA	Jan 14, 2000	Mar 8, 2000	Jan 31, 2002
Hydra-Press, Inc. Bull Shoals, Arkansas	Jan 24, 2002	Mar 8, 2000	Jan 31, 2002
Marlin Gas Transport, Inc. New Port Richey, FL	Nov 24, 1999	Feb 9, 2000	Jan 31, 2002
Motorfuelers, Inc. Clearwater, FL	Feb 26, 2000	Mar 8, 2000	Jan 31, 2002
Sonoma County Transit Sana Rosa, CA	Apr 13, 2000	Apr 27, 2000	Jan 31, 2002
Williams/Texas Gas (Former Grantee: TX Gas Transmission Corp.) Owensboro, KY	Jan 11, 2001	MAR 6 2001	Jan 31, 2002
Weldship Corp. Bethlehem, PA	Jan 10, 2001	MAR 6 2001	Jan 31, 2002

*Ann Mazzullo*  
for Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety